Simulation Campaign 1 Update

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Computing & Software / Simulation, Production & QA

Weekly CompSW meetings:
- https://indico.bnl.gov/category/410/
- **Wednesdays 11am EDT**

Weekly SimQA meetings:
- https://indico.bnl.gov/category/416/
  - And subcategories for fun4all and dd4hep office hours
- **Thursdays 2pm EDT**

Today's brief topics:
1. Timeline, goals, status for simulation campaign(s)
2. Background embedding

Timeline for Simulation Campaigns

Item	Task	Date
1	Acquire PWG physics/event requirements	June 2022
2	Aggregate and divide up the requirements for processing	June 2022
3	**First simulation campaign - June-July 2022 Concept**	June-July 2022
	Geometry/reconstruction feature freeze	**June 24**
	Bug fixing and benchmarking sprint	**June 24-July 1**
	Full simulation freeze and tag	**July 1**
4	Collaboration formation initiated (expected)	July 2022
5	Common Software Framework pieces decided on	August 2022
6	Develop common job submission framework	August 2022
7	**Second Simulation Campaign, October 2022 Concept**	November 2022
8	**Third Simulation Campaign, January 2023 Concept**	February 2023

You are here

Goals for Simulation Campaigns

- Provide data for PWGs to start analyzing in preparation for further campaigns
  - Get data in people's hands
  - Allow analysis workflows to continue developing
  - Not intended yet for final conclusions on physics performance or design, but a first step in an iterative process
- Provide target dates for inclusion of detector technology choices and designs
  - Implementation of the correct technology for simulation and reconstruction
  - Gradual improvement of detector and physics parameters
- Somewhat of an "exercise in exercising"
- Comparative studies between technologies will be targeted after this campaign, when robust comparisons can be made in a single software stack

Campaign 1 Status

- Live simulation request spreadsheet organized with various PWGs requests
  - Link here
  - Reminder: SimQA is not comparing frameworks. If WGs want to do that, that is up to you, but we don't think this is a useful use of time
  - This first campaign will utilize already developed tools. Campaign 2 will utilize the single Detector1 software stack that is actively being decided upon by S&C and SimQA
- Fun4All Status
  - Reference detector implemented, with some changes to tracking as instructed by tracking team
  - Build tagged and released on cvmfs
  - Exercising production scripts to begin job processing starting with single particles
  - Setup is ongoing (next a few pages)
- DD4Hep Status
  - Reference detector implemented, including barrel ecal, magnetic field, tracking layer configuration (except MPGDs), through event reconstruction (except track/cluster matching)
  - Cross-checks with DWGs will be required before parasitic simulation productions (coming soon)

Fun4All Simulation Status: SIDIS WG

https://docs.google.com/spreadsheets/d/1UNKtaVQ6oVSR7kthJ-2XwbQ27fh6-Ca-CdiWjJ2aMgI/edit#gid=0

WG	Description	Beam energies	Software stack	Input file location	Number of even	Priority	Status	Output Directory
SIDIS	Pythia6 18x275 General Q2	18x275	Fun4all	S3: ECCE/ProductionInputFiles/SIDIS/pythia6/	20M	1	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/SIDIS/pythia6/ep-18x275
SIDIS	Pythia6 18x275 1 < Q2 < 100	18x275	Fun4all	S3: ECCE/ProductionInputFiles/SIDIS/pythia6/	20M	2		/work/eic2/EPIC/Campaigns/prop.8/SIDIS/pythia6/ep-18x275-q2-low
SIDIS	Pythia6 18x275 100 < Q2	18x275	Fun4all	S3: ECCE/ProductionInputFiles/SIDIS/pythia6/	4M	3		/work/eic2/EPIC/Campaigns/prop.8/SIDIS/pythia6/ep-18x275-q2-high
SIDIS	Pythia6 5x41 General Q2	5x41	Fun4all	S3: ECCE/ProductionInputFiles/SIDIS/pythia6/	20M	4		/work/eic2/EPIC/Campaigns/prop.8/SIDIS/pythia6/ep-5x41
SIDIS	Pythia6 5x41 1 < Q2 < 100	5x41	Fun4all	S3: ECCE/ProductionInputFiles/SIDIS/pythia6/	20M	5	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/SIDIS/pythia6/ep-5x41-q2-low
SIDIS	Pythia6 5x41 100 < Q2	5x41	Fun4all	DNE	4M	6		
SIDIS	Pythia6 10x100 General Q2	10x100	Fun4all	S3: ECCE/ProductionInputFiles/SIDIS/pythia6/	20M	7	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/SIDIS/pythia6/ep-10x100
SIDIS	Pythia6 10x100 1 < Q2 < 100	10x100	Fun4all	S3: ECCE/ProductionInputFiles/SIDIS/pythia6/	20M	8	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/SIDIS/pythia6/ep-10x100-q2-low
SIDIS	Pythia6 10x100 100 < Q2	10x100	Fun4all	S3: ECCE/ProductionInputFiles/SIDIS/pythia6/	2M	9	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/SIDIS/pythia6/ep-10x100-q2-high
SIDIS	Pythia6 w/o ISR/FSR, 18x275 Genera	18x275	Fun4all	DNE	20M	1		
SIDIS	Pythia6 w/o ISR/FSR, 18x275 1 < Q2	18x275	Fun4all	DNE	20M	2		
SIDIS	Pythia6 w/o ISR/FSR, 18x275 100 < (	18x275	Fun4all	DNE	4M	3		
SIDIS	Pythia6 w/o ISR/FSR, 5x41 General C	5x41	Fun4all	DNE	20M	4		
SIDIS	Pythia6 w/o ISR/FSR, 5x41 1 < Q2 < :	5x41	Fun4all	DNE	20M	5		
SIDIS	Pythia6 w/o ISR/FSR, 5x41 100 < Q2	5x41	Fun4all	DNE	4M	6		
SIDIS	Pythia6 w/o ISR/FSR, 10x100 Genera	10x100	Fun4all	DNE	20M	7		
SIDIS	Pythia6 w/o ISR/FSR, 10x100 1 < Q2	10x100	Fun4all	DNE	20M	8		
SIDIS	Pythia6 w/o ISR/FSR, 10x100 100 < (	10x100	Fun4all	DNE	2M	9		
SIDIS	Lambda production	18x275	Fun4all	s3:eictest/ATHENA/EVGEN/SIDIS/Lambda	2M	1	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/SIDIS/pythia6/ep-18x275-Lambda

Input file can't be located

30k samples completed and successful with event evaluator files generated

Request from SimQA to SIDIS group and additional comments:
1. **Please validate these ASAP. And give us the go ahead to the Full Statistics Or the full data sample will be processed starting in one week**
2. **Privod Provide location for the missing input files**

Fun4All Simulation Status: Inclusive WG

https://docs.google.com/spreadsheets/d/1UNKtaVQ6oVSR7kthJ-2XwbQ27fh6-Ca-CdiWjJ2aMgI/edit#gid=0

Inclusive	Djangoh ep, 5x41, 1 < Q2	5x41	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	0.5M	1	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-5x41nc-q2-1
Inclusive	Djangoh ep, 5x41, 2 < Q2	5x41	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	1M	2	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-5x41nc-q2-2
Inclusive	Djangoh ep, 5x41, 10 < Q2	5x41	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	0.5M	3	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-5x41nc-q2-10
Inclusive	Djangoh ep, 5x41, 50 < Q2	5x41	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	0.3M	4	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-5x41nc-q2-50
Inclusive	Djangoh ed, 10x100, 1 < Q2	10x100	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	0.5M	1	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-10x100nc-q2-1
Inclusive	Djangoh ed, 10x100, 2 < Q2	10x100	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	1M	2	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-10x100nc-q2-2
Inclusive	Djangoh ed, 10x100, 10 < Q2	10x100	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	1M	3	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-10x100nc-q2-10
Inclusive	Djangoh ed, 10x100, 100 < Q2	10x100	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	0.5M	4	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-10x100nc-q2-100
Inclusive	Djangoh ed, 10x100, 500 < Q2	10x100	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	0.1M	5	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-10x100nc-q2-500
Inclusive	Djangoh ep, 18x275, 1 < Q2	18x275	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	0.1M	1	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-18x275nc-q2-1
Inclusive	Djangoh ep, 18x275, 2 < Q2	18x275	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	1M	2	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-18x275nc-q2-2
Inclusive	Djangoh ep, 18x275, 10 < Q2	18x275	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	1M	3	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-18x275nc-q2-10
Inclusive	Djangoh ep, 18x275, 50 < Q2	18x275	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	1M	4	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-18x275nc-q2-50
Inclusive	Djangoh ep, 18x275, 100 < Q2	18x275	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	1M	5	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-18x275nc-q2-100
Inclusive	Djangoh ep, 18x275, 1000 < Q2	18x275	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	0.5M	6	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-18x275nc-q2-1000
Inclusive	Djangoh ep CC, 5x41, 1 < Q2	5x41	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	1M	1	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-5x41cc-q2-1
Inclusive	Djangoh ep CC, 18x275, 1 < Q2	18x275	Fun4all?	/work/eic2/ECCE/users/tkutz/djangoh_files	1M	2	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/Inclusive/Djangoh/ep-18x275cc-q2-1
Inclusive	Djangoh ep photo, 18x275, 2 < Q2	18x275	Fun4all?	DNE	6M	3	50k Sample Completed	

Input file can't be located

30k samples completed and successful with event evaluator files generated

Request from SimQA to Inclusive WG and additional comments:
1. **Please take a look at the datam, event evaluator files and provide feedbacks ASAP**
   a. **Full statistics will be processed during the weeked.**

Fun4All Simulation Status: Jet/HF WG

Jet/HF	Pythia8 ep, 18x275 1 < Q2	18x275	?	S3:eictest/ATHENA/EVGEN/DIS/NC	5M		1	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/HFandJets/pythia8/ep-10x100nc-q2-1
Jet/HF	Pythia8 ep, 18x275 10 < Q2	18x275	?	S3:eictest/ATHENA/EVGEN/DIS/NC	5M		2	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/HFandJets/pythia8/ep-10x100nc-q2-10
Jet/HF	Pythia8 ep, 18x275 100 < Q2	18x275	?	S3:eictest/ATHENA/EVGEN/DIS/NC	5M		3	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/HFandJets/pythia8/ep-10x100nc-q2-100
Jet/HF	Pythia8 ep, 10x100 1 < Q2	10x100	?	S3:eictest/ATHENA/EVGEN/DIS/NC	5M		1	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/HFandJets/pythia8/ep-18x275nc-q2-1
Jet/HF	Pythia8 ep, 10x100 10 < Q2	10x100	?	S3:eictest/ATHENA/EVGEN/DIS/NC	5M		2	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/HFandJets/pythia8/ep-18x275nc-q2-10
Jet/HF	Pythia8 ep, 10x100 100 < Q2	10x100	?	S3:eictest/ATHENA/EVGEN/DIS/NC	5M		3	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/HFandJets/pythia8/ep-18x275nc-q2-100
Jet/HF	Pythia8 ep, 5x41 1 < Q2	5x41	?	S3:eictest/ATHENA/EVGEN/DIS/NC	5M		1	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/HFandJets/pythia8/ep-5x41nc-q2-1
Jet/HF	Pythia8 ep, 5x41 10 < Q2	5x41	?	S3:eictest/ATHENA/EVGEN/DIS/NC	5M		2	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/HFandJets/pythia8/ep-5x41nc-q2-10
Jet/HF	Pythia8 ep, 5x41 100 < Q2	5x41	?	S3:eictest/ATHENA/EVGEN/DIS/NC	5M		3	50k Sample Completed	/work/eic2/EPIC/Campaigns/prop.8/HFandJets/pythia8/ep-5x41nc-q2-100
Jet/HF	Pythia8 ep CC, 18x275 1 < Q2	18x275	?	DNE	5M		1		
Jet/HF	Pythia8 ep CC, 18x275 10 < Q2	18x275	?	DNE	5M		2		
Jet/HF	Pythia8 ep CC, 18x275 100 < Q2	18x275	?	S3:eictest/ATHENA/EVGEN/DIS/CC	5M		3	Issue with input	
Jet/HF	Pythia8 ep CC, 10x100 1 < Q2	10x100	?	DNE	5M		1		
Jet/HF	Pythia8 ep CC, 10x100 10 < Q2	10x100	?	DNE	5M		2		
Jet/HF	Pythia8 ep CC, 10x100 100 < Q2	10x100	?	S3:eictest/ATHENA/EVGEN/DIS/CC	5M		3	Issue with input	
Jet/HF	Pythia8 ep CC, 5x41 1 < Q2	5x41	?	DNE	5M		1		
Jet/HF	Pythia8 ep CC, 5x41 10 < Q2	5x41	?	DNE	5M		2		
Jet/HF	Pythia8 ep CC, 5x41 100 < Q2	5x41	?	S3:eictest/ATHENA/EVGEN/DIS/CC	5M		3	Issue with input	

Input file in HEPMC3 refuse to turn into eic-smear root tree

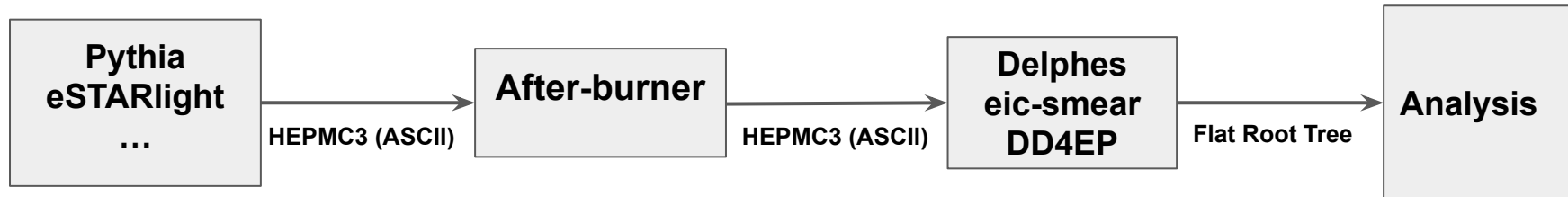**50k samples are being simmulated**

Input file can't be located

Request from SimQA to Jet/HF WG and additional comments:
1. **Please validate these ASAP. And give us the go ahead to the Full Statistics Or the full data sample will be processed starting in one week**
2. **Privod Provide location for the missing input files**
3. **Kolja is looking into the input file issue**
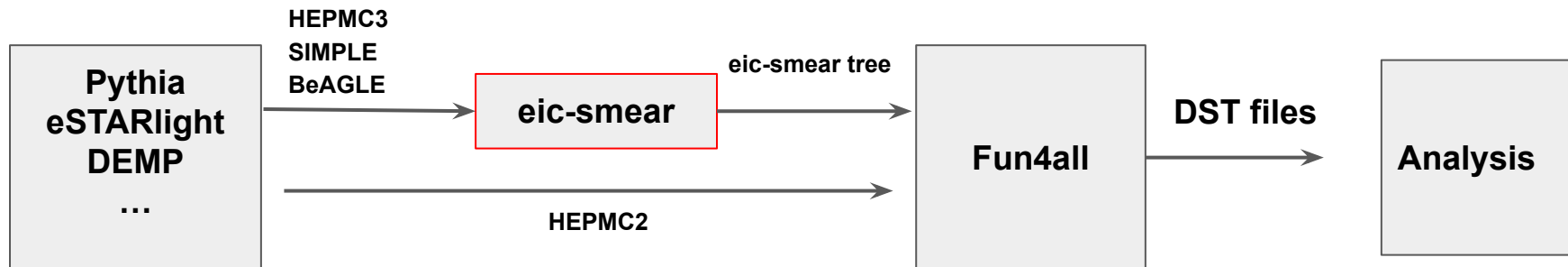4. **Full statistics with evaluator file will be generated as soon as**

Input files for HF/Jets required preparation
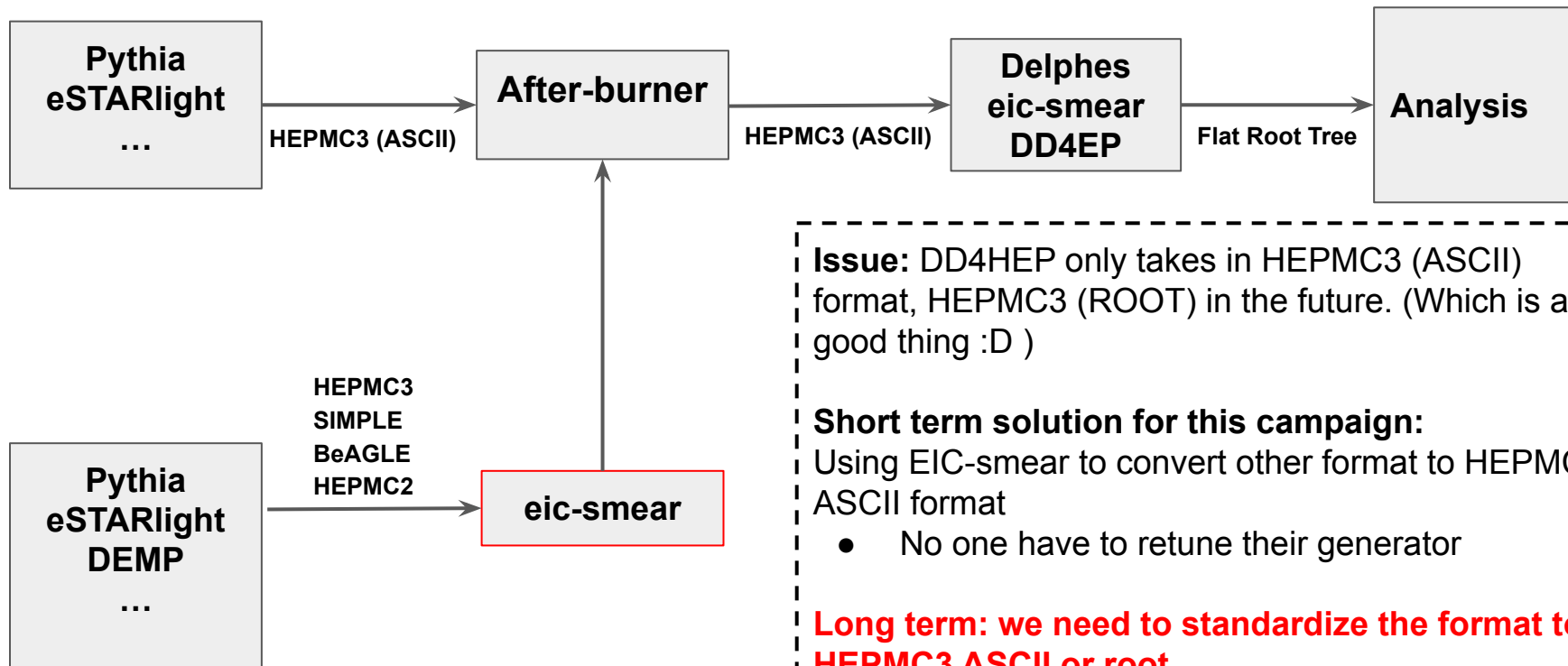
For DD4HEP

For Fun4All

What was requires for the HF/Jets input files?
- Prepare special production branches with after burner turn off
- Convert HEPMC3 text file to EIC-smear tree
  - 9 NC setting = 45 input HEPMC files, each takes 5-10 mins to convert to eic-smear tree

9

Issue for DD4HEP and proposed solution

For DD4HEP

Issue: DD4HEP only takes in HEPMC3 (ASCII) format, HEPMC3 (ROOT) in the future. (Which is a good thing :D)

Short term solution for this campaign:
Using EIC-smear to convert other format to HEPMC3 ASCII format
- No one have to retune their generator

Long term: we need to standardize the format to HEPMC3 ASCII or root

Fun4All Simulation Status: Exclusive WG (1)

https://docs.google.com/spreadsheets/d/1bLA2vD_0i0WO7niqDcIDtV4DOrjF3jxgQHSGLt0OmPQ/edit?usp=sharing

Sartre samples		System	energy	Q2	VM	Breakup	Statistics	helicity	S3 location	Status	
	1	eAu	18x110	>1	J/psi -> ee	coherent	10M	N/A	eicS3/eictest/ATHENA/EVGEN	10% Sample completed	/work/eic2/EPIC/Campaigns/prop.8/ExclDiffTagg/Sartre/eAu-18x110-coh_JPsi-IP6
		eAu	18x110	>1	J/psi -> ee	incoherent	10M	N/A	eicS3/eictest/ATHENA/EVGEN	10% Sample completed	/work/eic2/EPIC/Campaigns/prop.8/ExclDiffTagg/Sartre/eAu-18x110-incoh_JPsi-IP6
	2	eAu	18x110	>1	Phi -> KK	coherent	10M	N/A	eicS3/eictest/ATHENA/EVGEN	10% Sample completed	/work/eic2/EPIC/Campaigns/prop.8/ExclDiffTagg/Sartre/eAu-18x110-coh_phi-IP6
		eAu	18x110	>1	Phi -> KK	incoherent	10M	N/A	eicS3/eictest/ATHENA/EVGEN	10% Sample completed	/work/eic2/EPIC/Campaigns/prop.8/ExclDiffTagg/Sartre/eAu-18x110-incoh_phi-IP6
		eAu	18x108	>1	Phi->KK	coherent (bsat)	3.5 M	N/A	/work/eic/users/jfrantz/ePb_Sartre_18x108_bsat_4Mev_phiKK_jfrantz_11_11_2021.root		
		eAu	18x108	>1	Phi->KK	incoherent	3.5 M	N/A	/work/eic/users/jfrantz/bnonsat_jfphi_sartre_ePb_18x108_4Mev.root		
BeAGLE samples											
	3	eAu	18x110	>1	Phi -> KK	incoherent	20M	N/A	eictest/ATHENA/EVGEN/EXCLUSIVE/DIFFRACTIVE_PHI_ABCONV/BeAGLE/*.hepmc		
EpIC samples		(pay attention to the _novtx.hepmc, related to issue #2)									
	4	ep	18x275	>1	Photon	DVCS.coherent	1M	N/A	eictest / ATHENA / EVGEN / EXCLUSIVE / DVCS_ABCONV / 18x275 / *.hepmc		
		ep	10x100	>1	Photon	DVCS.coherent	1M	N/A	eictest / ATHENA / EVGEN / EXCLUSIVE / DVCS_ABCONV / 10x100 / *.hepmc		
		ep	5x41	>1	Photon	DVCS.coherent	1M	N/A	eictest / ATHENA / EVGEN / EXCLUSIVE / DVCS_ABCONV / 5x41 / *.hepmc		
	5	ep	18x275	>1	Photon	DVCS+BH+INT.coherent	1M	N/A	/gpfs/mnt/gpfs02/eic/tezgin/job_22_06_08_0005/even.11.txt		
		ep	10x100	>1	Photon	DVCS+BH+INT.coherent	1M	N/A	/gpfs/mnt/gpfs02/eic/tezgin/job_22_06_08_0003/even.11.txt		
		ep	5x41	>1	Photon	DVCS+BH+INT.coherent	1M	N/A	/gpfs/mnt/gpfs02/eic/tezgin/job_22_06_08_0001/even.11.txt		
TCS files to be re-generated before sim											
	5	ep	18x275	>1	e+e-(?)	TCS.coherent	1M (?)	plus	eictest / ATHENA / EVGEN / EXCLUSIVE / TCS_ABCONV / 18x275 / hel_plus		
		ep	10x100	>1	e+e-(?)	TCS.coherent	1M (?)	plus	eictest / ATHENA / EVGEN / EXCLUSIVE / TCS_ABCONV / 10x100 / hel_plus		
		ep	5x41	>1	e+e-(?)	TCS.coherent	1M (?)	plus	eictest / ATHENA / EVGEN / EXCLUSIVE / TCS_ABCONV / 5x41 / hel_plus		
	6	ep	18x275	>1	e+e-(?)	TCS.coherent	1M (?)	minus	eictest / ATHENA / EVGEN / EXCLUSIVE / TCS_ABCONV / 18x275 / hel_minus		
		ep	10x100	>1	e+e-(?)	TCS.coherent	1M (?)	minus	eictest / ATHENA / EVGEN / EXCLUSIVE / TCS_ABCONV / 10x100 / hel_minus		
		ep	5x41	>1	e+e-(?)	TCS.coherent	1M (?)	minus	eictest / ATHENA / EVGEN / EXCLUSIVE / TCS_ABCONV / 5x41 / hel_minus		

10% Statistics completed

Fun4All Simulation Status: Exclusive WG (2)

https://docs.google.com/spreadsheets/d/1bLA2vD_0i0WO7niqDcIDtV4DOrjF3jxgQHSGLt0OmPQ/edit?usp=sharing

eSTARLight samples	(Yuanjing Ji for Upsilon, Zachary Sweger for backward production)								
7	ep	18x275	<1	Upsilon 1s	Coherent	50k(?)	N/A	eictest / ATHENA / EVGEN / EXCLUSIVE / UPSILON_ABCONV / upsilon1sphoto_ab_hiAcc_18x275_NEW.hepmc	
8	ep	18x275	<1	Upsilon 2s	Coherent	50k(?)	N/A	eictest / ATHENA / EVGEN / EXCLUSIVE / UPSILON_ABCONV / upsilon2sphoto_ab_hiAcc_18x275_NEW.hepmc	
9	ep	18x275	<1	Upsilon 3s	Coherent	50k(?)	N/A	eictest / ATHENA / EVGEN / EXCLUSIVE / UPSILON_ABCONV / upsilon3sphoto_ab_hiAcc_18x275_NEW.hepmc	
	ep	10x100	<1 (W<25GeV)	Upsilon 1s	Coherent	50k	N/A	eictest / ATHENA / EVGEN / EXCLUSIVE / UPSILON_ABCONV / upsilon1s_threshold_ab_hiAcc_10x100.hepmc	
	ep	18x275	<1 (W<25GeV)	Upsilon 1s	Coherent	50k	N/A	eictest / ATHENA / EVGEN / EXCLUSIVE / UPSILON_ABCONV / upsilon1s_threshold_ab_hiAcc_18x275.hepmc	
10	ep	18x275	<1	Backward produ	Coherent	100k	N/A	Not yet on S3 who can I send these to? (My email is zwsweger@ucdavis.edu)	
11	ep	10x100	<1	Backward produ	Coherent	100k	N/A	Not yet on S3. ""	

lAger samples	(N. Santiesteban)								
12	ep	5x41		J/psi -> ee	DVMP.coherent	874181	N/A	/w/eic-scshelf2104/users	Completed	/work/eic2/EPIC/Campaigns/prop.8/ExclDiffTagg/LAger/ep-5x41-DVMP_JPsi_e-hi_acc
	ep	5x100		J/psi -> ee	DVMP.coherent	1582104	N/A	w/eic-scshelf2104/users/	Completed	/work/eic2/EPIC/Campaigns/prop.8/ExclDiffTagg/LAger/ep-5x100-DVMP_JPsi_e-hi_ac
	ep	10x100		J/psi -> ee	DVMP.coherent	2370469	N/A	/w/eic-scshelf2104/users	Completed	/work/eic2/EPIC/Campaigns/prop.8/ExclDiffTagg/LAger/ep-10x100-DVMP_JPsi_e-hi_a
	ep	18x275		J/psi -> ee	DVMP.coherent	5331724	N/A	/w/eic-scshelf2104/users	Completed	/work/eic2/EPIC/Campaigns/prop.8/ExclDiffTagg/LAger/ep-18x275-DVMP_JPsi_e-hi_a
12	ep	5x41		J/psi -> ee	DVMP.coherent	874181	N/A	/w/eic-scshelf2104/users	Completed	/work/eic2/EPIC/Campaigns/prop.8/ExclDiffTagg/LAger/ep-5x41-DVMP_JPsi_e-hi_div-
	ep	5x100		J/psi -> ee	DVMP.coherent	1582104	N/A	w/eic-scshelf2104/users/	Completed	/work/eic2/EPIC/Campaigns/prop.8/ExclDiffTagg/LAger/ep-5x100-DVMP_JPsi_e-hi_di
	ep	10x100		J/psi -> ee	DVMP.coherent	2370469	N/A	/w/eic-scshelf2104/users	Completed	/work/eic2/EPIC/Campaigns/prop.8/ExclDiffTagg/LAger/ep-10x100-DVMP_JPsi_e-hi_c
	ep	18x275		J/psi -> ee	DVMP.coherent	5331724	N/A	/w/eic-scshelf2104/users	Completed	/work/eic2/EPIC/Campaigns/prop.8/ExclDiffTagg/LAger/ep-18x275-DVMP_JPsi_e-hi_c

Full Statistics completed

TOPEG samples	(G. Penman, University of Glasgow)								
13	e-He4	5x41	>1	Photon	DVCS.coherent	1M	plus	/w/eic-scshelf2104/users/gpenman/topeg/June_2022/eA-5x41-M3-Ph.root
	e-He4	10x100	>2	Photon	DVCS.coherent	1M	plus	/w/eic-scshelf2104/users/gpenman/topeg/June_2022/eA-10x100-M3-Ph.root
	e-He4	18x137	>5	Photon	DVCS.coherent	1M	plus	/w/eic-scshelf2104/users/gpenman/topeg/June_2022/eA-18x137-M3-Ph.root
14	e-He4	5x41	>1	Photon	DVCS.coherent	1M	minus	/w/eic-scshelf2104/users/gpenman/topeg/June2022/eA-5x41-M3-Nh.root
	e-He4	10x100	>2	Photon	DVCS.coherent	1M	minus	/w/eic-scshelf2104/users/gpenman/topeg/June2022/eA-10x100-M3-Nh.root
	e-He4	18x137	>5	Photon	DVCS.coherent	1M	minus	/w/eic-scshelf2104/users/gpenman/topeg/June2022/eA-18x137-M3-Nh.root

Each request will from Exclusive WG for ep and eA light meson production will trigger two simulations: hi-divergence and hi-acceptance
For eA (A>30), eAu parameterization is used.

Fun4All Simulation Status: Exclusive WG (3)

https://docs.google.com/spreadsheets/d/1bLA2vD_0i0WO7niqDcIDtV4DOrjF3jxgQHSGLt0OmPQ/edit?usp=sharing

TOPEG samples		(G. Penman, University of Glasgow)								
13	e-He4	5x41	>1	Photon	DVCS.coherent	1M	plus	/w/eic-schelf2104/users/gpenman/topeg/June_2022/eA-5x41-M3-Ph.root
	e-He4	10x100	>2	Photon	DVCS.coherent	1M	plus	/w/eic-schelf2104/users/gpenman/topeg/June_2022/eA-10x100-M3-Ph.root
	e-He4	18x137	>5	Photon	DVCS.coherent	1M	plus	/w/eic-schelf2104/users/gpenman/topeg/June_2022/eA-18x137-M3-Ph.root
14	e-He4	5x41	>1	Photon	DVCS.coherent	1M	minus	/w/eic-scshelf2104/users/gpenman/topeg/June2022/eA-5x41-M3-Nh.root
	e-He4	10x100	>2	Photon	DVCS.coherent	1M	minus	/w/eic-scshelf2104/users/gpenman/topeg/June2022/eA-10x100-M3-Nh.root
	e-He4	18x137	>5	Photon	DVCS.coherent	1M	minus	/w/eic-scshelf2104/users/gpenman/topeg/June2022/eA-18x137-M3-Nh.root
DEMPgen		(Stephen Kay, Garth Huber, University of Regina)							
15	ep	5x100		ep -> e pi+ n	DEMP.coherent	500k	N/A	Location will be updated soon
EIC_mesonMC		(Richard Trotta, The Catholic University of America)							
	ep	5x41	>1	ep -> e + n		1M	N/A	Location will be updated soon
	ep	5x100	>1	ep -> e + n		1M	N/A	Location will be updated soon
	ep	10x100	>1	ep -> e + n		1M	N/A	Location will be updated soon
	ep	18x275	>1	ep -> e + n		1M	N/A	Location will be updated soon
MILOU3D		(Igor Korover, MIT)							
16	ep	5x41		Photon	DVCS.coherent	1M	N/A	Location will be updated soon
		10x100		Photon	DVCS.coherent	1M	N/A	
		18x275		Photon	DVCS.coherent	1M	N/A	

Request from SimQA to Exclusive WG and additional comments:
1. Pay attention to the status update on the google page.
2. Be patient for a few more days. We are tackling these requests now.
3. Please upload the missing input files.

Instructions on accessing data stored on JLab farm via xrootd

How to access the data?

From JLab:

```
$ module load singularity/3.9.2
$ singularity shell -c -H "$HOME" -B /apps,/cvmfs,/group,/work/eic,/work/eic2,/work/eic3
/cvmfs/eic.opensciencegrid.org/singularity/rhic_sl7_ext
$ export LANG=C
$ source /cvmfs/eic.opensciencegrid.org/ecce/gcc-8.3/opt/fun4all/core/bin/ecce_setup.sh -n
$ export LD_PRELOAD=/usr/lib64/libXrdPosixPreload.so
$ ls root://dtn-eic.jlab.org//work/eic2/EPIC

Alternatively:

$ ls /work/eic2/
```

From BNL SDCC (eic0101):

```
$ singularity shell -c /cvmfs/eic.opensciencegrid.org/singularity/rhic_sl7_ext
$ export LD_PRELOAD=/usr/lib64/libXrdPosixPreload.so
$ ls root://dtn-eic.jlab.org//work/eic2/EPIC
```

Instructions on accessing data stored on S3

From JLab:

How to access the data?

```
$ module load singularity/3.9.2
$ singularity shell -c -H "$HOME" -B /apps,/cvmfs,/group,/work/eic,/work/eic2,/work/eic3
/cvmfs/eic.opensciencegrid.org/singularity/rhic_sl7_ext
$ export LANG=C
$ source /cvmfs/eic.opensciencegrid.org/ecce/gcc-8.3/opt/fun4all/core/bin/ecce_setup.sh -n
$ mcs3 ls eicS3/eictest/
```

From BNL SDCC (eic0101):

```
$ singularity shell -c /cvmfs/eic.opensciencegrid.org/singularity/rhic_sl7_ext
$ mcs3 ls eicS3/eictest/
```

Issues and timeline

- **Most of the evaluators are not maintained well to generate reliable results (broken)**
  - **Joe will take a look at these and lead the charge on updating the broken evaluators.**

- **Groups used DD4Hep stack finds it is difficult to look at the data.**
  - **Please help each other and share the code for looking at these data.**

- **A question regarding the event_evaluator version**
  - **Privately communicate with Friederike**

- **xroord doesn't have EPIC subdirectory currently**
  - **Being resolved by David and Markus**

- **Bottom line: no show stopper. Aim to deliver simulated data to most people by Monday**

Important for physics WG

```
//---------------------
// Simulation evaluation
//---------------------
if (Enable::EVENT_EVAL) Event_Eval(outputroot + "_eventtree.root");
if (Enable::TRACKING_EVAL) Tracking_Eval(outputroot + "_g4tracking_eval.root");
if (Enable::CEMC_EVAL) CEMC_Eval(outputroot + "_g4cemc_eval.root");
if (Enable::HCALIN_EVAL) HCALInner_Eval(outputroot + "_g4hcalin_eval.root");
if (Enable::HCALOUT_EVAL) HCALOuter_Eval(outputroot + "_g4hcalout_eval.root");
if (Enable::FEMC_EVAL) FEMC_Eval(outputroot + "_g4femc_eval.root");
if (Enable::FHCAL_EVAL) FHCAL_Eval(outputroot + "_g4fhcal_eval.root");
if (Enable::EEMC_EVAL) EEMC_Eval(outputroot + "_g4eemc_eval.root");
if (Enable::FFR_EVAL) FFR_Eval(outputroot + "_g4ffr_eval.root");
if (Enable::B0ECAL_EVAL) B0ECAL_Eval(outputroot + "_g4b0ecal_eval_test.root"); // For B0Ecal
if (Enable::BWD_EVAL) BWD_Eval(outputroot + "_g4bwd_eval_e0100_debug"); // For Bwd
if (Enable::FWDJETS_EVAL) Jet_FwdEval();
```
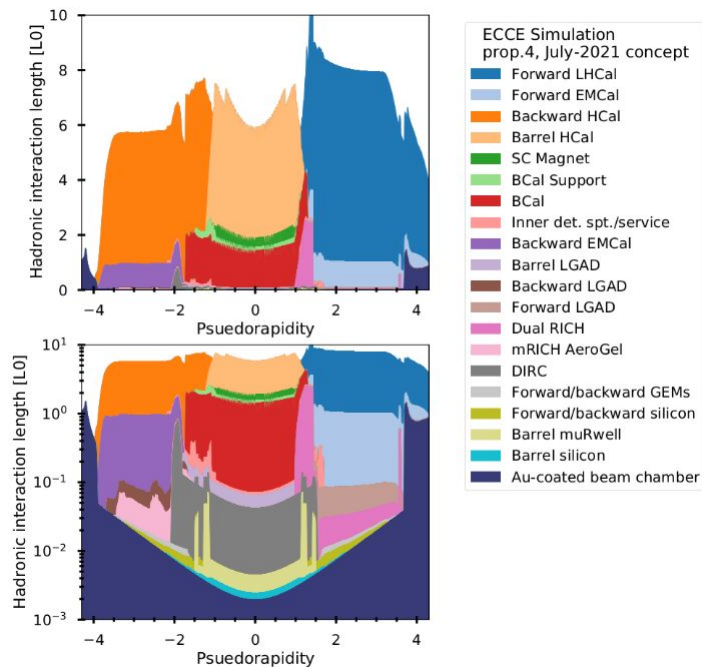
Less important

Remaining work

- Complete Simulation campaign 1 in 10 days.
- Paracitis campaign for DD4HEP.

September! The training month ! (Another reminder)

A word about training (tentative)

Now that major decisions in the single software stack have been taken, we understand the need for training and propose the following:

- In recognition of August vacations and in recognition of new students starting in September, the CompSW and SimQA are planning to make September a training month. This gives the working groups some time to prepare the materials for synchronous delivery, so they accurately reflect the changes since the start of the single software stack decision.
- Over the course of September, we will have several training sessions on the various topics of the new software stack, which we invite all EPIC researchers to attend (and in particular the software liaisons should make every effort to attend).
- A detailed schedule will be released at the August 19 conveners meeting, but it will likely look something like this (tentatively there will be two sessions for each topic to accommodate multiple time zones, maybe Friday morning and Friday afternoon):
  - September 2: Setting up your environment for collaborative EPIC development
  - September 9: Geometry development using DD4hep: how to modify or add detector description?
  - September 16: Simulation of single particles or physics events using geant4 and ddsim
  - September 23: Reconstruction algorithms in JANA2: from geant4 output to reconstructed quantities
  - September 30: Writing physics benchmarks that run automatically and reproducibly

Tentative plan jointly developed and endorsed by CompSW and SimQA

There are also people asking for documentation at a shorter time scale, so related to this training plan we could promise to give a zeroth order review to existing documentation by two weeks from now for asynchronous and self-guided consumption (things like replacing eicweb with github where required).

Software & Simulation Office Hours and Helpdesk

- **DD4hep-based software stack**:
  Monday, Friday, 2pm EDT
  Wednesday, 2pm ⇄ 9pm EDT
- **Fun4all-based software stack**:
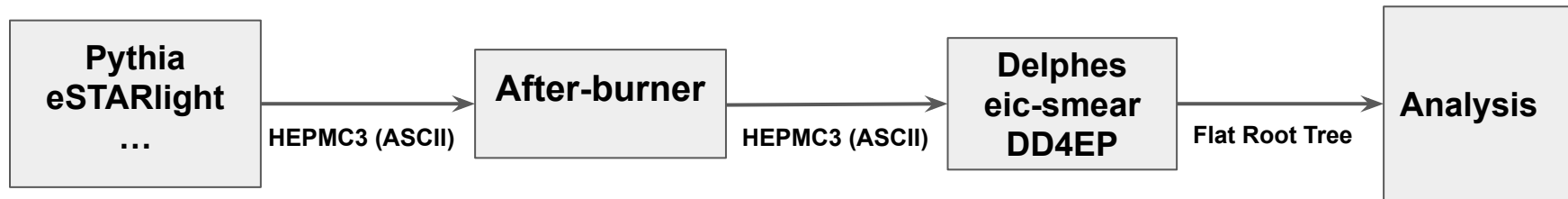 Tuesday, 3pm ⇄ 8:30pm EDT

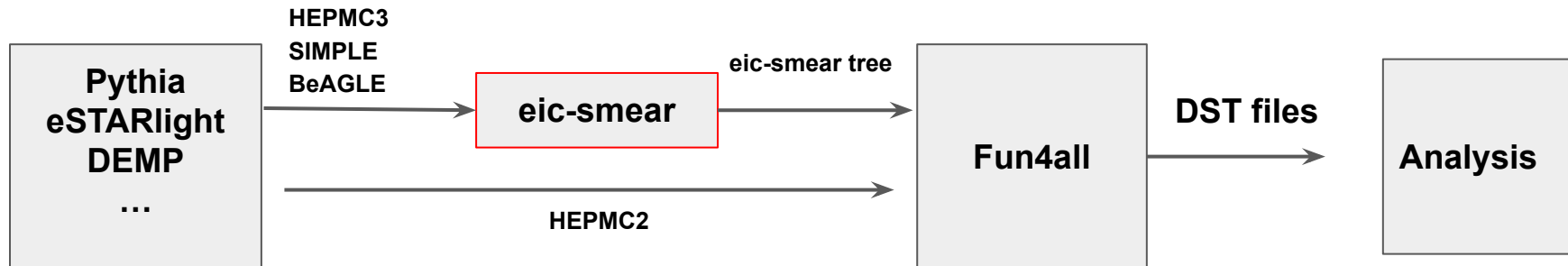Or contact us on the Helpdesk channel on the EIC Mattermost! Click here!
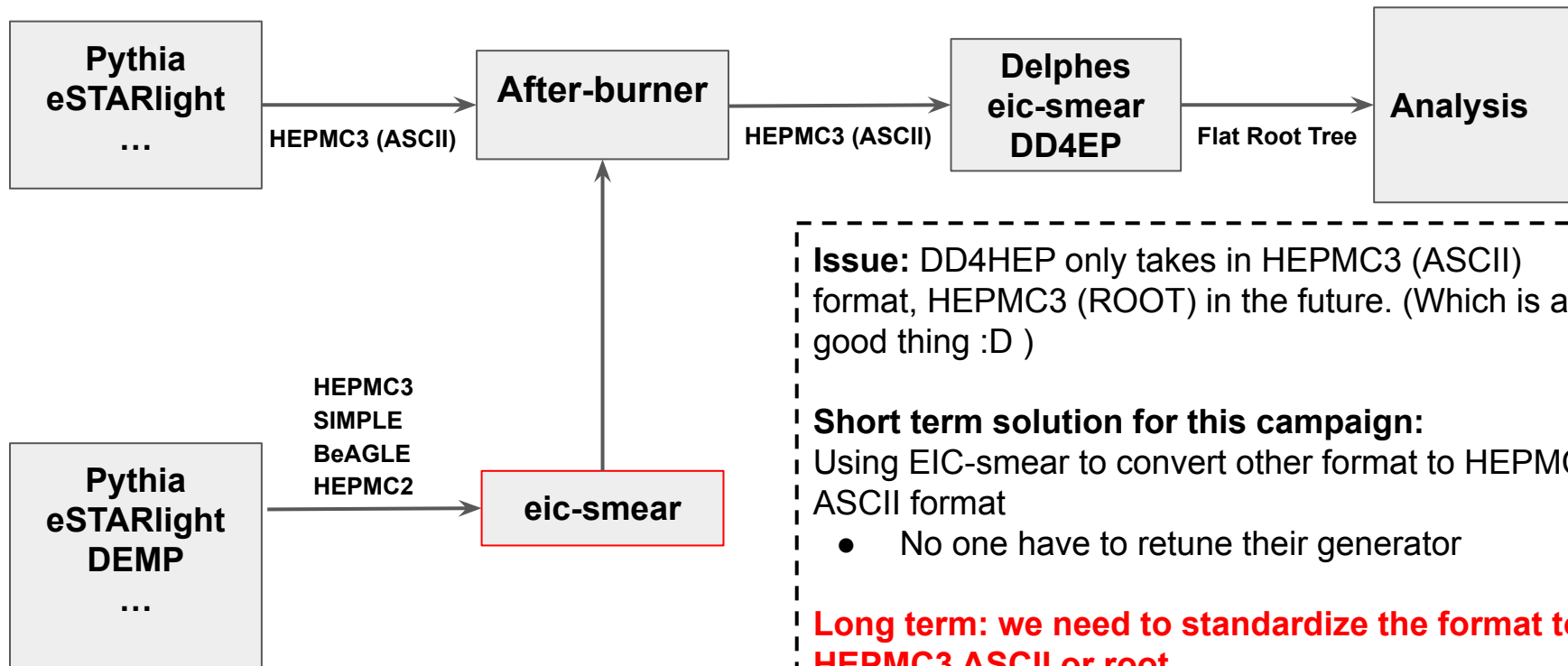
Input files

For DD4HEP

| Pythia eSTARlight ... | → HEPMC3 (ASCII) → | After-burner | → HEPMC3 (ASCII) → | Delphes eic-smear DD4EP | → Flat Root Tree → | Analysis |

For Fun4All

| Pythia eSTARlight DEMP ... | → HEPMC3 SIMPLE BeAGLE → | eic-smear | → eic-smear tree → | Fun4all | → DST files → | Analysis |
| | → HEPMC2 → | | | | | |

Issue for DD4HEP and proposed solution

For DD4HEP

Pythia eSTARlight … → HEPMC3 (ASCII) → **After-burner** → HEPMC3 (ASCII) → **Delphes eic-smear DD4EP** → Flat Root Tree → **Analysis**

Pythia eSTARlight DEMP … → HEPMC3 SIMPLE BeAGLE HEPMC2 → **eic-smear** → (up to After-burner)

Issue: DD4HEP only takes in HEPMC3 (ASCII) format, HEPMC3 (ROOT) in the future. (Which is a good thing :D)

Short term solution for this campaign:
Using EIC-smear to convert other format to HEPMC3 ASCII format
- No one have to retune their generator

Long term: we need to standardize the format to HEPMC3 ASCII or root
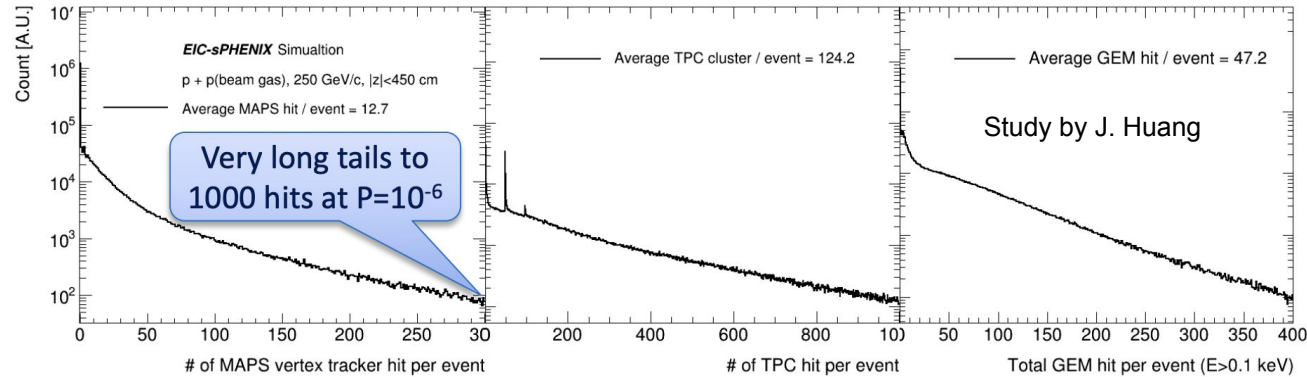
Instruction from other formats to HEPMC3

Instruction from other formats to HEPMC3 ASCII: [Yes]

- https://github.com/eic/eic-smear#creation-of-hepmc-output

Thanks to Kolja

Instruction from other formats to HEPMC3 ROOT: [Yes]

Background Simulation Studies

- Embedded background needs to become a major priority for all WGs
  - Discussed in SimQA meetings in context of tracking, but relevant for everyone
- Various background files exist (e.g. beam-gas)
- Very important effort that needs to get underway ASAP, ongoing now
- Background implementation plan.
  - DD4Hep + Gaudi , DD4Hep + Janna 2:
    https://indico.bnl.gov/event/16414/contributions/65719/attachments/42059/70436/Background%20Embedding_%20Implementation%20Plans.pdf
    Fun4All approach:
    https://indico.bnl.gov/event/16414/contributions/65720/attachments/42058/70431/2022.07.11%20Background.pdf